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Develop a multilingual website for Sunny Safari Oy

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2018 Laurea



Laurea University of Applied Sciences

**Develop a multilingual website for Sunny Sa-
fari Oy Develop a multilingual website for
Sunny Safari Oy**

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Degree Programme in Business In-
formation Technology
Bachelor's Thesis
May,2018 2018

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Year	20182018	Pages	41
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A well-structured multilingual website contributes to the success of tourism business. This study is based on the multilingual website development project for a tourism company-Sunny Safari Oy. The aim is creating a multilingual website for Sunny Safari Oy.

In order to conduct this multilingual website project, technical development knowledge and methods are required, which mainly includes website design skills, WordPress knowledge, PHP, and Bootstrap. Besides, benchmarking analysis method is utilized within project planning phase.

Project development tasks consist of multilingual website planning, design, implementation, and testing. The outcome of the project is a launched multilingual WordPress website. The first version of Sunny Safari website has two language version that includes English and Chinese, and it provides customers with customized online tourism service.

A WordPress based multilingual website for Sunny Safari Oy is launched in the beginning of November 2017, however, they still need more future improvements to promote its website service. Website localisation and multilingual booking service are recommended for future website development.

Keywords: multilingual website, WordPress, Polylang, language switcher

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Acronyms and Abbreviations

CSS	Cascading Style Sheets
CMS	Content Management System
FAQs	Frequently Asked Questions
URL	Uniform Resource Locator
HTML	Hypertext Markup Language
WCMS	Web Content Management System

1 Introduction

The tourism industry is one of the world's largest industries, which contributes to global economy (World Tourism Organization UNWTO 2018). Tourism business well benefits from multilingual services, especially multilingual website, which is a website that offers content in more than one language (What is a multilingual website n.d.).

According to Benckendorff, Sheldon & Fesenmaie (2014, 88), multilingual website plays a vital role in the tourism business which has global customers. Sunny Safari Oy is a safari type tourism company, who does not want to fall behind its competitors because of no website. Therefore, Sunny Safari Oy decides to have a website for its future customers from all over the world.

1.1 Company background

Sunny Safari Oy is tourism company, which is established in March 2017, Rovaniemi. It targets at safari activities in Finnish northern area. It provides varieties of safari activities, such as reindeer safari, husky safari, sleigh ride in Santa Claus Village and so on.

As a tourism company, Sunny Safari Oy's customers are international, multilingual view of website is demanded for meeting their business needs.

1.2 Project background

There is no IT support team in Sunny Safari Oy so far, it means that there won't be experts to solve technical issues of websites. Hence, they require a multilingual website which can be easily managed and maintained by non-specialist in the future. The point of easily managed website is that Sunny Safari Oy does not need to hire professional website worker, but they can easily handle website management work themselves, such as modify website texts information or graphics, add new language webpages, and so on.

In the beginning of the project, Sunny Safari Oy's target customer groups are English speaking people and Chinese people, therefore, English and Chinese are two language options in the first version of Sunny Safari website. Nevertheless, there won't be only two languages permanently, Sunny Safari Oy will add more language options in the future when they expand their business market.

In general, we need to create a multilingual website for Sunny Safari Oy. There are three people work in Sunny Safari website project, includes web designer and web developers. I am mainly responsible for multilingual part.

The project starts from 26th September 2017. The first version of Sunny Safari website is asked to be published before the end of October 2017.

1.3 Thesis structure introduction

This thesis is based on Sunny Safari website project. The research question is how to develop an easily-managed multilingual website, and the whole thesis mainly focuses on multilingual development part.

Thesis structure mainly consists of introduction (Chapter 1), planning (Chapter 2), design (Chapter 3), implementation (Chapter 4), testing (Chapter 5), conclusion (Chapter 6), and resource references.

2 Planning of the Sunny Safari website project

A successful outcome from planning phase will be beneficial for proceeding website development phase. In this planning phase, aim and objectives are defined, benchmarking analysis is conducted. Moreover, websites requirements are defined for continuous website development.

2.1 Define aim and objectives

In this thesis introduction chapter, the theoretical background of multilingual website definition and its significance in tourism business has been given. During the initial planning phase of the Sunny Safari website project, the aim and objectives of the Sunny Safari website is defined and reviewed, where explains why multilingual website is required from its theoretical view.

2.1.1 Aim: Create a multilingual website for Sunny Safari Oy

As described in the Monolingual vs. Multilingual Web Sites (W3C Internationalization Working Group, 2004), multilingual website has different forms that include multilingual site with same content, multilingual site with changed content and so on. Multilingual site with same content refers to website that site content keeps consistent vary from one language webpage to another language webpage, all site content is translated into different language but not reflect local culture according to different language speaking area. Multilingual site with changed content not only provides different language site content, but also offers relevant language culture and interests content in different language webpages. Multilingual site with same content is applied for the first version of Sunny Safari website. Following aspects well explained why Sunny Safari Oy set multilingual website as its aim.

1) Improve communication with international clients

Sunny Safari Oy is a tourism company, whose customers are worldwide. In current situation, Chinese tourist is one of the targeted customer group, as we all know that Chinese speaker is more than other language speaker and English is not commonly used by

Chinese people. According to an analytical report about user language preferences online (2011, 5), Internet users prefer to browse and search in their native language, nine out of ten Internet users in the EU prefer to buy in their own language if there are options for choosing languages from website.

Even though English is the most frequently used language so far, people who frequently use English version website is less than who is occasionally use it. When customers' native language is not available in website, only 53% of customers have possibility to view English version website. In addition, there is around 44% EU Internet users expressed that there is no understandable language option from some websites, which resulting in those users missing attracting information (User language preferences online 2011, 5-6). When the website is presented with customers' native language but not only English, it would make customers easily understand the website and meet more growing needs from customers.

2) Enlarger Sunny Safari Oy's sales market

Safari tourism is being quite popular compare to traditional tourism these years, multilingual safari tourism website would open new markets for safari tour service and increase the likelihood of attracting new customers. User language preferences online analytical report (2011, 5) shows that 57% Internet users use multilingual website for searching and purchasing products or services. Multilingual website would bring more those kinds of online shoppers and enlarge sales market for Sunny Safari Oy.

3) Cost effective

There are variety of ways to market products and services provided by Sunny Safari Oy in foreign markets, such as opening offices in foreign countries, TV advertisement in different foreign markets, but those marketing fees are quite expensive, making a multilingual website is the most cost-effective solution among them.

2.1.2 Objectives

Five step by step objectives are clearly defined for achieving the aim, which includes:

- 1) benchmarking analysis of competitors' multilingual websites;
- 2) define Sunny Safari multilingual website requirements;
- 3) design Sunny Safari multilingual website;
- 4) implement Sunny Safari multilingual website;

5) test and launch Sunny Safari multilingual website.

2.2 Benchmarking analysis

Sunny Safari Oy is just one of safari tourism company in Lapland area, there are much other competitors who provide customers with great tourism service. As Sunny Safari Oy required, we would go through their competitors' website before developing their own website service. Therefore, development team has conducted benchmarking analysis, which determined that Sunny Safari website is based on WordPress CMS.

Benchmarking is a general word, there are varieties of benchmarking types in project management, such as process benchmarking, performance benchmarking, best-in-class benchmarking, product benchmarking, functional benchmarking, strategic benchmarking, and so on (Understanding the purpose and use of benchmarking n.d.).

According to Wober (2002, 1-4), best-in-class benchmarking is a process to study products, services, or processes of the competitor that considered to be the best in the industry, and it aims to identify best practice in a certain competition area for improving company's own products, services, or processes. Benchmarking analysis in this study aims to generate some ideas for developing Sunny Safari website via comparing from its competitors' websites. Thus, best-in-class benchmarking method is applied for benchmarking analysis in this study.

2.2.1 Select subject

The purpose of benchmarking analysis is to make a wise decision on website development in a competitive market via gathering adequate and relevant information. The point of using benchmarking is to identify client company's opportunities for improvement and support planning of Sunny Safari multilingual website project. Identify and eliminate gaps in safari tour services helps Sunny Safari Oy to gain a competitive edge in Lapland safari tour marketplace. Thus, the subject of this benchmarking analysis is multilingual website.

2.2.2 Choose competitors for benchmarking

Lapland Safaris Group Oy and Lapland Welcome Oy are professional and experienced safari type company, they provide high quality safari tour service in Lapland area. Compare to Lapland Safari Group Oy and Lapland Welcome Oy, Sunny Safari Oy is a smaller size company, but provides similar safari tour products and services. Those two companies were chosen by Sunny Safari Oy as best-in-class companies.

2.2.3 Identify data source

Main data source is from competitor companies' official website:

<https://www.laplandsafaris.com/en/>

<https://laplandwelcome.fi/>

2.2.4 Collect and Analyse data from competitors' websites

By comparison between Lapland Safaris Group website and Lapland Welcome website, data from these two websites are collected and analysed into two different parts, which consist of similarity and difference. The similarity part shows in Table 1 below when the difference part is presented in Table 2 below.

Similarities	Description
Site interface	Well-designed, clear site layout
Site functions	User-friendly site, for example, company information, safari tour service, product information, and booking information could be easily found on their website by customers
Site content	Multilingual content is provided; English is site default language; Links social media, frequently asked questions, and blogs in sites

Table 1: The similarity part

Differences	Lapland Safari Group website	Lapland Welcome website
Website framework	Joomla	WordPress
Website theme colour	Red	Blue
Frontpage display	Image slides of safari activities	Amazing aurora video
Language options	6 different language selections; Dropdown menu is applied to switch language	8 different language selections; All language options are visible on top-left navigation bar

Online booking service	Booking service is out-sourced to CodeGem Oy	Self-own booking system
Additions	Safari tour tips are provided on website	Lapland climate and aurora forecast information are displayed on website

Table 2: The difference part

Table 1 and table 2 illustrates common and different site structure, page layout and page content from Lapland Safaris Group website and Lapland Welcome website, which is analysed for generating design ideas of Sunny Safari website.

2.2.5 Target future performance

According to the benchmarking analysis, both Lapland Safari Joomla website and Lapland Welcome WordPress website are CMS website, besides, they provide multilingual version of website with different features.

Sunny Safari Oy decided to learn and apply best-in-class companies' performance into its own personalized website, which is using CMS to develop multilingual Sunny Safari website. According to Farooq, Javed, Abbas, and Hussain (2012), Joomla and WordPress are fully customizable and free open source CMS, while WordPress has more and better performance features than Joomla. Additionally, WordPress is easier for people to begin with and maintain it in future, it has more themes and addons, stronger community support, and multilingual content support (Singhal et al. n.d.). Thus, WordPress is chosen for creating multilingual Sunny Safari website.

2.3 Define multilingual website requirements

Website requirements do not set website design and development details, but it tells what features, functions and content are needed on website. Website requirements contribute to website development project's success. Sunny Safari website requirements based on benchmarking analysis and company marketing needs.

2.3.1 Business requirements

According to Sunny Safari Oy business team's requirements, company related social media tools need to be linked in their website, which includes YouTube, Facebook, WeChat. Additionally, insert booking service system into website that is outsourced to CodeGem Oy. Moreover, the first version of Sunny Safari website is expected to be launched before the end of October 2017.

2.3.2 Multilingual website requirements

WordPress content management system would be utilized for Sunny Safari website development, which is a free online, open source creation tool (WordPress 2018). General website requirements are mainly defined on three aspects that include features, functions, and content, which shows in table 3 below.

	Requirements
Features	<p>Useful and usable for multilingual users;</p> <p>Appealing and easily-understanding multilingual user interface;</p> <p>Structured page layout;</p> <p>Keep the interface simple;</p> <p>Easy to be maintained</p>
Functions	<p>Efficient and easy to use;</p> <p>User-friendly and highly responsive;</p> <p>Clear contact information</p>
Content	<p>Multilingual and attractive content;</p> <p>Consistent and credible content.</p>

Table 3: Multilingual website requirements

3 Sunny Safari website design

This user-centred website design is mainly driven by website requirements that are summarised from project planning phase. The whole design mainly consists of two parts: Coming Soon page design and real website design.

3.1 Our site is coming soon

Our site is coming soon page is designed for using while we are creating Sunny Safari website. It shows Sunny Safari website currently is been building but it will be launched soon.

Our website development based on WordPress, however, some search engines such as Google might skip indexing our site until we get some real content. In this case, Coming Soon page

could provide some useful information for those people who are visiting our site when our real site is in construction process. Moreover, Coming Soon page is our site's self-advertising, which helps attract audience's attention to our website. When audience search our website information from internet, they would notice that our site is not non-existent, and they would probably review our site if they are interested. Additionally, our estimated website completion time is about one month, we could hide website working progress and publish ready parts of website during website development period.

Our site is coming soon page shows in Figure 1 below, which is simply consists of website background colour, logo, and notifications words.

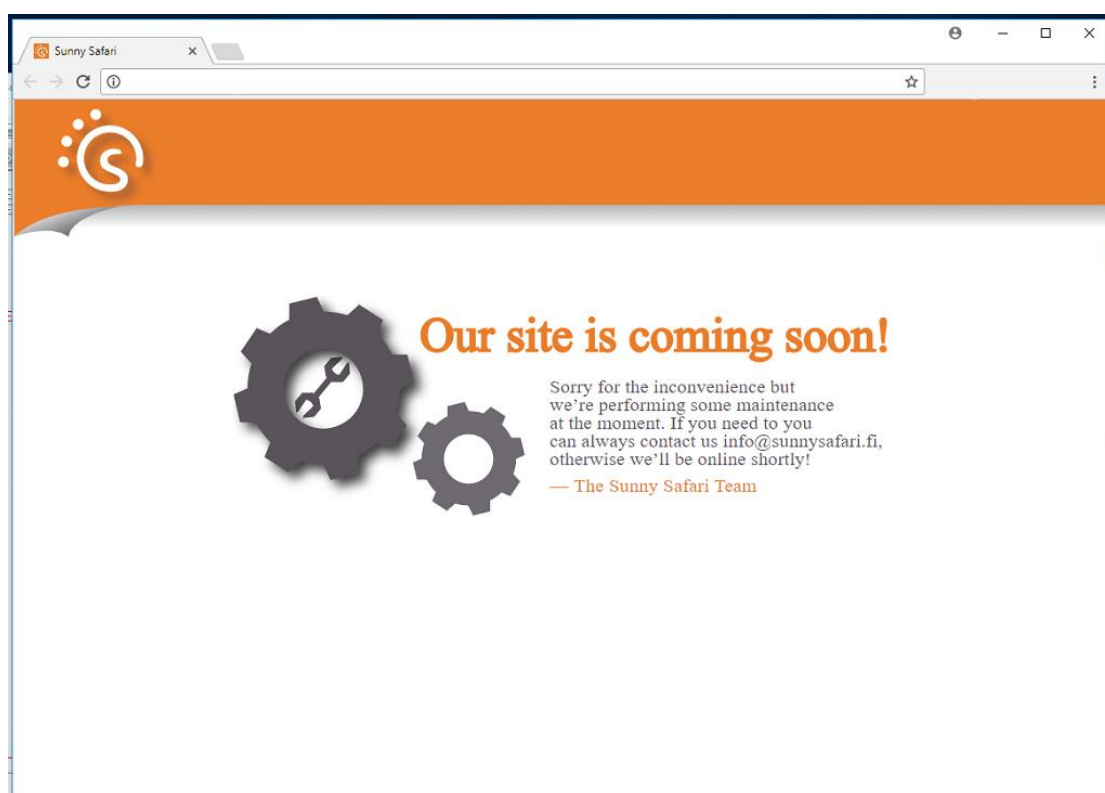


Figure 1: Our site is coming soon page design

3.2 Multilingual website design

The multilingual website design describes the basic structure, page layout, and content of Sunny Safari website and its multilingual design. In the first version of Sunny Safari website, multilingual site with same content is applied. Put it in another word, the first version of Sunny Safari website offers English and Chinese language sites, but all the website structure, page layout, and content keep consistent in these two-language site.

3.2.1 Site design and structure

Site design and structure refers to the overall structure of the Sunny Safari website. An effective website design for tourism type is usually graphically intensive, which can easily catch site visitors' eyes. Following aspects are main design elements.

1) Colour

As a member of warm colour family, orange has been chosen for Sunny Safari website's main colour. Orange colour shows a link between website and 'Sunny' word in company's name. Orange Colour brings warm and bright feeling to customers when you travel to Lapland area in cold and dark winter, whilst it symbolizes the round-the-clock sunlight in summer time.

2) Site logo

Site logo design also focus on ideas from company's name. The logo resembles a shining sun. One logo design is white logo with orange background (Figure 2), second one is orange logo with transparent background (Figure 3). Site logo would be used on browser tab and website header.



Figure 2: White logo with orange background (Shenghan Zhou)



Figure 3: Orange logo with transparent background (Shenghan Zhou)

3) Shopping cart logo

Shopping cart logo is designed for linking booking service system, which would be located on right side of site header. There will display box-shadow of shopping cart logo when

hover mouse on it. Booking service system page will be opened in a new tab when click shopping cart logo. The shopping cart logo is presented as figure 4 below.



Figure 4: Shopping cart logo (Shenghan Zhou)

4) Font and text direction

According to multilingual website usability analysis based on international user survey (Miraz, Ali & Excell n.d., 242), those people who have dyslexia prefer to read sans serif fonts. Due to set site's user interface to be legible and attractive, we selected sans serif font, which well fits multilingual typography.

5) Language selection

English is default language of Sunny safari website, in the beginning of project, there is only English and Chinese version, but there will be more language options in the future. On initial language selection design (Figure 5), English and Chinese flag logo is located on the right side of site header, when click flag logo, it will appear corresponding language page.



Figure 5: Initial language selection design

Considering the more future language selections and responsive web design, a new language switcher design replaced initial two flags design. Figure 6 illustrates that the new language switcher has better features, which displays a globe icon in the right corner of page header. When hover mouse on globe icon, flag images will reveal vertically. Additionally, language name will appear when hover mouse on flag image.



Figure 6: Language switcher design

6) Placement of text and graphic

In different language culture, people have different reading style, either from right to left or from left to right, or from top to bottom. The multilingual website usability analysis (Miraz et al. n.d., 238) illustrates that graphics can help people understand site content, but graphics placement does not affect people's text comprehensibility that much. Thus, it quite important to design text placement to improve our multilingual website acceptance when site visitors have different reading direction. Due to our current English and Chinese language options, text and graphic placement is designed vertically from top to bottom and horizontally from left to right.

7) Navigation

Navigation is a tool that guides users to move different information or pages on a website. An effective navigation design will help users easily browsing webpages and quickly find information. Menu is main part of navigation, it supports navigation to present different options. Consistency, simplicity, and context are three key points for Sunny Safari website's easy navigation.

Consistency means we would provide users a consistent user interface when browsing Sunny Safari website's different part. For instance, site's main background colour is always orange and menu options keep on the top site of screen.

Simplicity means that there is no complicated navigation tool or too much menu options, three levels of menu is maximum. The navigation bar usually takes much space on a small screen, so that show navigation bar horizontally when it is laptop or computer screen (Figure 7), replaces navigation bar into a button (called "MENU") on the top right corner when it is small screen (Figure 8). The navigations links would be revealed vertically once we click the "MENU" button.

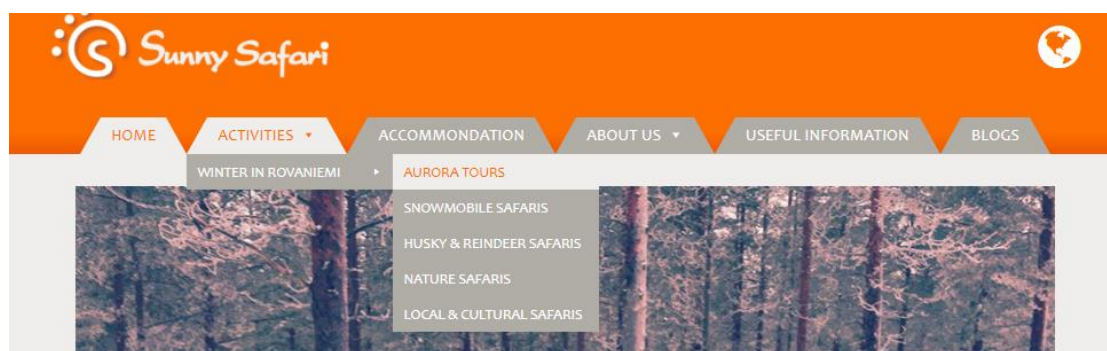


Figure 7: Navigation on normal screen

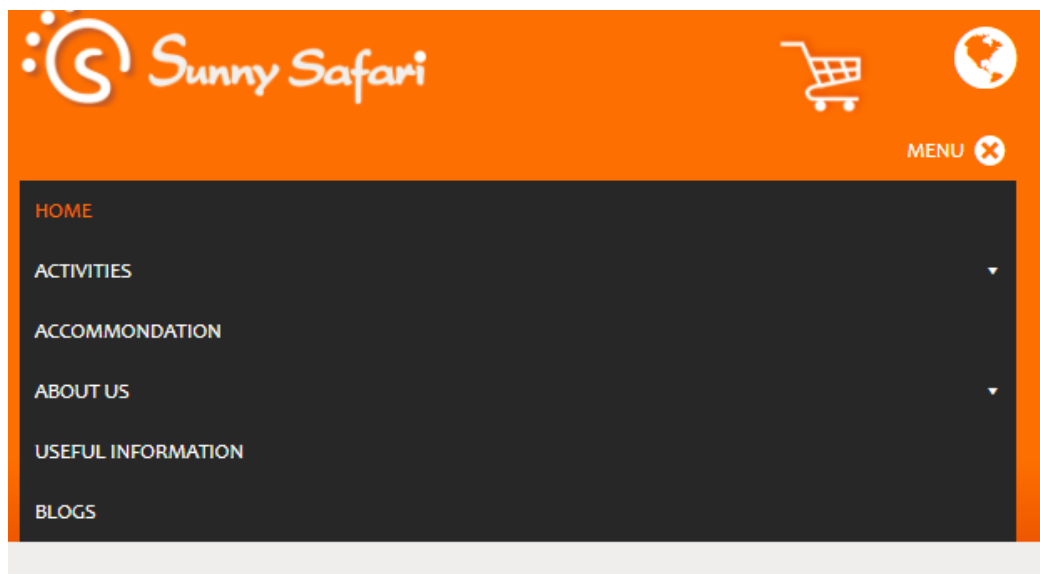


Figure 8: Navigation on small screen

Context is kind of indicator for users when they are viewing website site, it will let users know which part been currently viewing. In order to achieve context effect, menu option designed to changing colour when users hover mouse on it. Once menu option is selected, the colour would change again.

8) Footer

Three Social media logo (YouTube, Facebook, WeChat) are designed into site footer. Under social media logos, there is company contact information. The footer design shows as Figure 9 below.



Figure 9: Footer design

9) Screen and browser resolution

A successful website should adapt all kinds of screen and browser. From desktop to tablet to smartphone, there is a range of different screen resolution. Recent years, over

50 % website users visit websites supported by mobile phones, at the same time, tablet using also becomes more popular (Chaffey & Ellis-Chadwick 2016, 391).

Apart from different devices access to website with different screen resolution, different browsers have different resolution as well, such as Microsoft Internet Explorer IE, Google Chrome, Mozilla Firefox, and so on. Images and text are displayed minorly different among those varieties of browsers (Chaffey & Ellis-Chadwick 2016, 391).

Responsive design will solve screen and browser resolution issue efficiently. By using web development methods such as CSS and image scaling, website layout, format and content would be modified to match different screen resolution that are supported by different devices.

3.2.2 Page design

The page design is about suitable layout of webpage elements that mainly include site title, header, content, footer. Pages with similar page layout share common page template. Page header and page footer keeps the same in each separate webpage. Common page header includes site logo, shopping cart logo, language options, horizontal navigation bar and menu options. Common page footer includes social media logo of YouTube, Facebook, and WeChat, and simple contact information. Page type and its design elements are listed in table 4.

Page type	Page design elements
Homepage	page header, slide show of three images, text content, horizontal image, activities shortcut, page footer
Activities page	page header, text content,

	<p>activities shortcut (When click each activities shortcut, users will see detail information of single product.),</p> <p>page footer</p>
Accommodation page	<p>page header,</p> <p>image and text content,</p> <p>page footer</p>
About us page	<p>page header,</p> <p>background image with text content,</p> <p>contact information,</p> <p>contact us form, join us form,</p> <p>terms and conditions link (Terms and condition page is subpage of about us page, which consists of page header, text content and page footer),</p> <p>page footer</p>
Blogs page	<p>page header,</p> <p>image,</p> <p>blog post shortcut content (Each blog post shortcut links its detail post information),</p> <p>page footer</p>
Useful information page	<p>page header,</p> <p>image and text content,</p> <p>FAQs,</p> <p>page footer</p>

Table 4: Page design

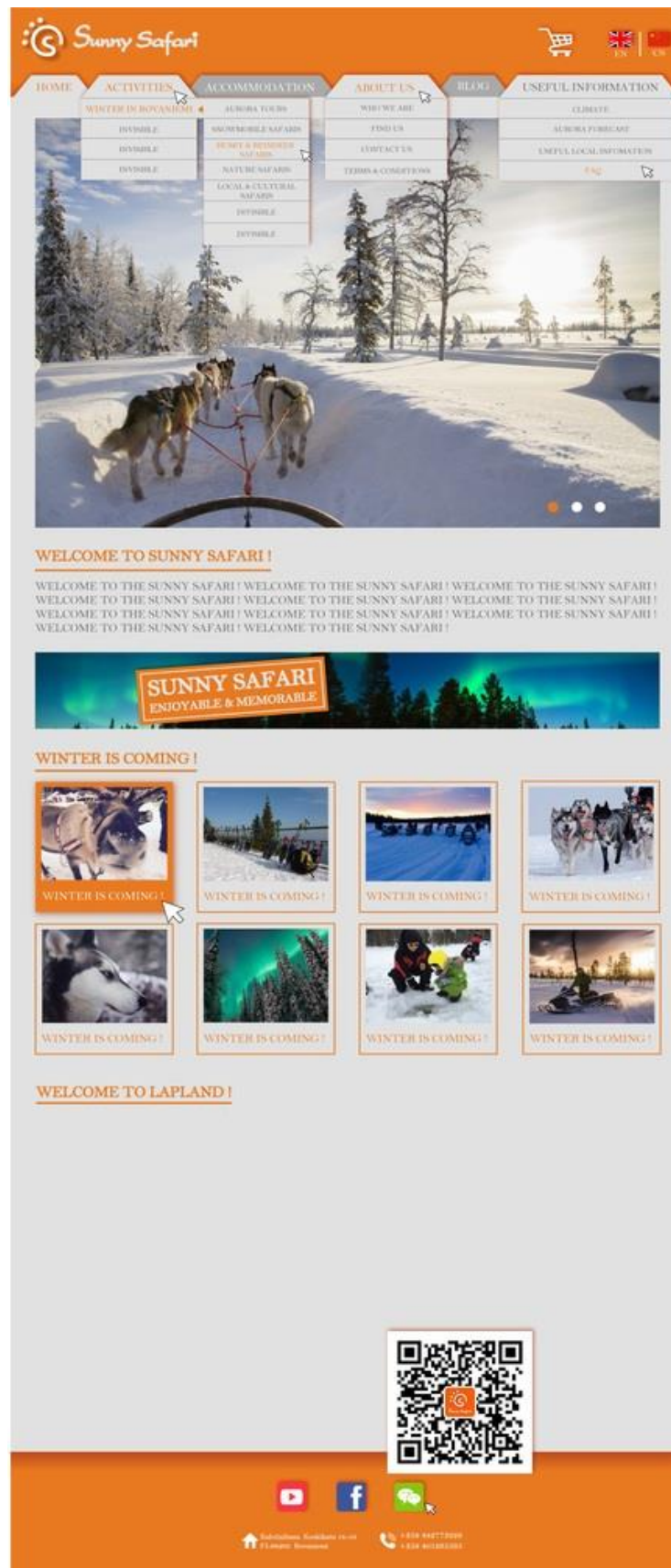


Figure 10: Homepage design (Shenghan Zhou)

The blueprint of Sunny Safari website homepage is given as an example in figure 10.

3.2.3 Content design

Content is combination of texts, images, and multimedia on web pages. Our web designer uses relevant resources to edit texts, images, and multimedia to fit page layout. There are some key points for Sunny Safari website content design:

Content are created and structured based on users' needs. For example, detail information about safari activities should be easily founded, all the content is designed to fit multilingual web pages. Moreover, consistent content style needs to be kept. Additionally, content display is supported by different access platforms, such as laptop, tablets, phones, and so on.

4 Sunny Safari website implementation

Sunny Safari website implementation is generally based on its design. Due to tensive project working time, the English version of Sunny Safari Website needs to be launched before the end of October 2017. Therefore, Sunny Safari website's English version has been implemented in the first stage, which is mainly done by my project partner. In the second stage, I am responsible for accomplishing whole multilingual part and publish it in the beginning of November 2017.

4.1 Website development tools and methods

Sunny Safari website is a WordPress site, which needs to be developed locally, and then move developed WordPress from local server to live site. Necessary technical web development tools and methods are applied to Sunny Safari website development.

4.1.1 WordPress software

Since Sunny Safari website is a WordPress website, a WordPress software obviously needs to be firstly downloaded and installed for setting local WordPress environment. A WordPress software package can be downloaded from WordPress.org.

4.1.2 PHP

PHP is scripting language of WordPress and object-oriented programming language for web development (PHP 2018). It is also essentially required for running WordPress.

4.1.3 MySQL

MySQL is an open source relational database management system, which is based on Structured Query Language (What is MySQL 2018)). MySQL is necessary required for providing database service for WordPress site's running.

4.1.4 Apache

Apache is a free, reliable, and secure web server software, which runs on over 50% of web-servers around the world (What is Apache 2018). Apache is used for providing web server service for Sunny Safari website.

4.1.5 XAMPP

XAMPP is a free and user-friendly web server package developed by Apache Friends (What is XAMPP 2018). XAMPP offers local dev environment for running WordPress on local server, it combines Apache, MySQL, PHP, OpenSSL, phpMyAdmin, Webalizer, Mercury Mail Transport System, FileZilla FTP Server, and Tomcat (apache friends).

4.1.6 Bootstrap

Bootstrap is a free front-end framework for responsive web development and an open source toolkit that includes HTML, CSS, and JavaScript (Bootstrap 2018). For example, placement of web graphic and text content in Sunny Safari website is achieved by using Bootstrap.

4.1.7 cPanel

cPanel is a customized control panel for managing Linux or Windows based web servers or hosts (cPanel features 2018). cPanel is used for managing Sunny Safari live WordPress site, such as back up website, upload files to site, and so on.

4.1.8 Git and Gitlab

Git is a version control system for tracking changes in computer files and coordinating work on those files among multiple people (git 2018). Gitlab is an open-sourced and web-based Git repository manger, which freely hosts our private Sunny Safari website project (GitLab 2018). We have two people working on website development part, we not only can push our own local development work via Git to Gitlab, but also pull co-worker's accomplishment from Gitlab to our own local WordPress. It is convenient for us to work independently and mange Sunny Safari website's repository by using Git and Gitlab

4.1.9 Notepad++

Notepad++ is a text editor and source code editor, which is developed for running in the Microsoft Windows environment (Notepad++ 2018). It supports different programming language, includes Sunny Safari website development programming language, such as PHP, HTML, CSS, and so on. In addition, it meets our code editing needs when our web developers are using Microsoft Windows operating system.

4.2 Sunny Safari website English version

English is default language of Sunny safari website and other language webpages would adapt English version site's layout and format. In another word, English version website sets basic structure for multilingual version, other language sites' content is just translation of English site.

4.2.1 Setup local WordPress development environment

Setup a local WordPress test environment for Sunny Safari website to develop themes, plugins, and update sites.

XAMPP configuration. XAMPP is downloaded from its official site and installed on local computer. Apache and MySQL have been chosen as windows services. After XAMPP installation, setup WordPress directory in the htdocs folder of XAMPP and name it as "sunny-safari-wp-4-8-2", and then create WordPress Database on phpMyAdmin of Sunny Safari website.

WordPress configuration. Download WordPress version 4.8.2 from WordPress official website and install it in WordPress directory "sunny-safari-wp-4-8-2".

4.2.2 Install WordPress in cPanel

Log into cPanel account, choose WordPress and install it for Sunny Safari website in cPanel. cPanel is used for managing live Sunny Safari website. After local WordPress development and testing, WordPress will be moved from local server to live site.

4.2.3 Install Git and create Gitlab project

Git has been downloaded from its official site and installed on local computer. Whilst Sunny Safari project has been crated in Gitlab. Local WordPress development work of Sunny Safari website would be pushed to Gitlab via using Git.

4.2.4 Implement "Our site is coming soon" page

Before real Sunny Safari website launched, "Our site is coming soon" page (Figure 11) has been edited as index.html and put on running server of Sunny Safari website.

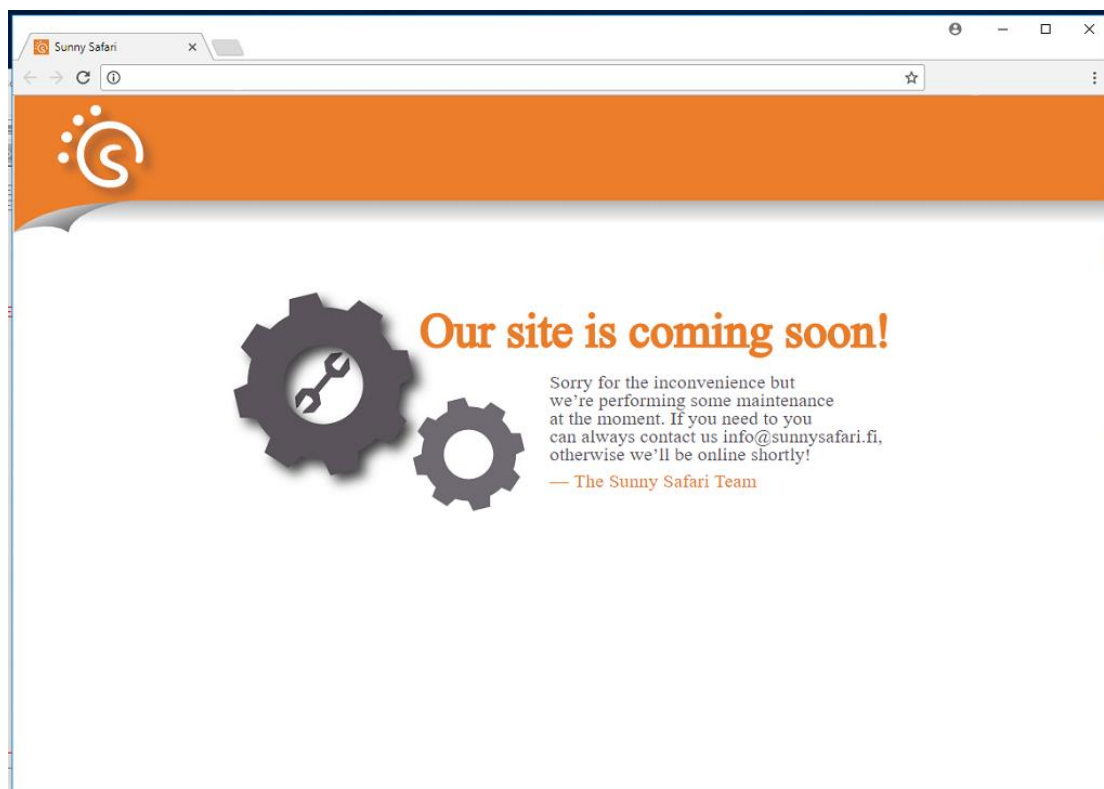


Figure 11: Our site is coming soon

4.2.5 Implement real English site

The real English version of Sunny Safari website is implemented step by step. The first thing is building site structure, and then fill into graphics and text content. The basic elements of site implementation work are described as Table 4 below.

Site Elements	Description
WordPress theme	Start real website construction work from creating empty WordPress Bootstrap theme with font awesome. This theme named as Sunny Safari.
Plugins	Download and activate several needed plugins that includes Meta Slider 3.5.1, Insert HTML snippet 1.2.2, Contact Form 7.4.9, Max Mega Menu 2.4, and so on.
Widgets	Edit widgets for website header and footer using.

Categories	Create categories for activities posts and blog posts.
Pages	Code each page's template in HTML file and update them into WordPress, then fill into graphics and texts content.
Posts	Code format for posts content, fill into graphics and texts content, then categorize posts into activities type or blogs type and choose which page they should show on.
Menus	Plugin Max Mega Menu 2.4 is used for managing navigation menus.
Contact forms	Plugin Contact Form 7.4.9 is used for creating contact forms.

Table 5: Implement English version of Sunny Safari website

4.3 Implement multilingual Sunny Safari website

When Sunny Safari website's English version is running on, its multilingual version should be put on agenda. Bilingual or multilingual blog out-of-the-box is not supported by WordPress, but multilingual WordPress objective could be achieved by using plugins to switch different language webpage. We can either create our own customized multilingual plugin or choose an existed plugin from WordPress community. Building a new plugin costs much time and requires very professional skills, and it is not convenient for future maintenance work. Considering of those new plugin difficulties, we decided to choose a ready plugin for multilingual website development.

4.3.1 Multilingual plugin selection

There are hundreds of WordPress plugins for multilingual usage. It is vital to choose a suitable and compatible plugin for our Sunny Safari WordPress theme. There are several top popular multilingual plugins for WordPress site, such as WPGlobus, WPML and Polylang.

WPGlobus is a family of WordPress plugins that support for translating and maintaining multilingual WordPress sites and it is the foundation and core of other plugins in the family (WPGlobus - Multilingual Everything 2018). WPML is a multilingual plugin for easily running a multilingual website, which is available in Multilingual Blog and Multilingual CMS versions (WooCommerce Multilingual - run WooCommerce with WPML 2018). Polylang provide all-in-

one solution for us to build multilingual WordPress website. (Polylang 2018). Table 5 shows similar and different features among these three multilingual plugins.

Features	WPGlobus	WPML	Polylang
Developer	WPGlobus	OnTheGoSystems	Frédéric Demarle
Language support	Supports any language, but all the site content needs to be translated manually.	Supports for over 40 languages and language editor to add new language options.	Supports for more than 40 languages with the admin interface available and adding new language options.
Active installations	Over 20000	Over 80000	Over 300000
Support automatic translation?	No	Yes	Yes, the translation can either be done manually or by using Lingotek Translation add-on of Polylang plugin.
Cost free?	Yes	No	Yes
Provide general multilingual tools?	Yes, but it needs to add other separate add-ons, such as WPGlobus featured images, WPGlobus language widgets, WPGlobus mobile menu, and so on.	Yes, the WPML CMS version includes all multilingual features like translation of custom fields, widgets, and offers e-commerce support	Yes, and it can automatically detect the language in the browser and translate media, menus, widgets, posts, and so on.
Update regularly to compatible with WordPress updates?	Yes, but not often	Yes	Yes, and often

Table 6: Multilingual plugin

By comparing Polylang to WPGlobus and WPML, polylang is not only cost-free and time-saving plugin, but also easily to be applied and managed. Since WPGlobus needs more other separated add-ons from WPGlobus family when use WPGlobus for multilingual sites, which it is not

an easy website management work. In contrast, using Polylang is easy, requiring no technical skills. Even though WPML is a quite good choice, it is not a cost-free plugin. Thus, Polylang is chosen as multilingual plugin for developing Sunny Safari multilingual website.

4.3.2 Multilingual plugins installation

It is obvious that we need to install Polylang and activate it, however, Polylang does not automatically support our multilingual version of contact form plugin. Hence, we need to install Contact Form 7 Polylang extension to compensate it, whose version is 1.4.6. When Polylang 2.2.5 is installed and activated, there would be a languages menu bar on WordPress control panel.

4.3.3 Polylang setting

Go in Languages>Settings, there are different setting modules. URL modifications module, detect browser language module, and custom post types and taxonomies module are most important three modules.

URL modifications module. URL modifications decide how multilingual site's URLs look like. The language is set from the directory name in pretty permalinks and remove “/language/” in pretty permalinks for default language English. For example, when the directory name is accommodation, the URL should be “http://www.sunnysafari.fi/accommodation/”, but not “http://www.sunnysafari.fi/en/accommodation/”.

Detect browser language module. Activate “detect browser language module”, when site users visit Sunny Safari website's front page, which will be set into the language page according to site users' browser preference.

Custom post types and taxonomies module. This module is designed for activating the languages and translations management for custom post types and taxonomies. Sunny Safari website includes two custom post types: contact forms and FAQs, which are chosen to be translated. Otherwise, contact forms and FAQs would be only presented as English version in different language webpages.

4.3.4 Create new language Chinese

Go to Languages>Languages, select new language - Simplified Chinese and add it. All fields will be filled up automatically by Polylang except “Order”. Since the order of English language is 0, the order of Chinese should be 1.

According to EURESCOM (2001, 21-22), different language in written format takes more or less space, which effects the whole layout of multilingual website. Due to keep consistent page layout and content format among different language webpages, Simplified Chinese language

webpage is formatted by coding in CSS file, such as format font and font size of Chinese language. In addition, UTF-8 is set as character encoding in HTML files, which is able to represent any character in essentially any language.

Except Chinese text, graphics in Chinese version site is also needed to be considered. EURESCOM (2001, 22) illustrates that localised graphics in multilingual website effects cultural sensitivity or marketing decisions, additionally, the embedded text in graphic is supposed to be localised. In the Chinese version of Sunny Safari website, all the graphics are as same as they are in English version site, which are not localised to Chinese culture.

4.3.5 Create multilingual menus

Edit Chinese version menus in Appearance> Menus, the menu structure should be matched with Chinese language site page. Besides, the multilingual menu displays location should be correct. Otherwise, multilingual website won't work.

4.3.6 Translations

According to Schiller (2008, 78-82), there are four approaches to the translation of a website that includes machine translation, website localization, translation company and freelance translator. As Lako (2013) said, a proper localized website is necessary for any company who has international market, and it helps reach more global audience, which is highly recommended as translation approach for Sunny Safari website. Website localization refers to the process of combining language, culture, and customs of the target locale into website (Costales n.d.).

However, Sunny Safari website translation is not localised in implementation process, which is only pure translation from English text to Chinese text. In addition, Polylang provides Google translation service for our website content, however, Google translation is not that accurate. For providing customers with great user experience, text translation work of Sunny Safari website is done by professional human translation.

Once translation work is done, Chinese texts is filled into Sunny Safari website's Chinese version, which includes navigation bar, page content, posts, categories, tags, FAQs, contact forms, contact email template. However, the blog page content shouldn't be translated into English, because blog page shows original blogs that are posted by website users or customers in different language, which cannot be manually translated into Chinese.

4.3.7 Language switcher

When all the translations work is done, there must be a language switching function on website. Language switcher is the last but essential part of multilingual website implementation phase. Language switcher can be added anywhere in website, either add in the menus, or

added as a widget. According to our website design, language switcher is designed as widget in page header.

Firstly, register a widget area for language switcher with globe icon in functions.php file (Figure 12). Fa-globe icon is chosen from font awesome official website, the icon size is 3x.

```
register_sidebar( array(
    'name'          => __( 'Header language switcher', 'sunny-safari' ),
    'description'   => __( 'Language switcher in page header', 'sunny-safari' ),
    'id'            => 'header-language-switcher',
    'before_widget' => '<section id="%1$s" class="headerLanguageSwitcher"><i class="fa fa-globe fa-3x" aria-hidden="true"></i>',
    'after_widget'  => '</section>',
    'before_title'  => '<h5>',
    'after_title'   => '</h5>',
) );
```

Figure 12: Register language switcher widget

Then, drag “language switcher” into “header language switcher” widget area. There are different language display types (Figure 13): display as dropdown, display language names, display flags, force link to front page, hide the current language, and hide languages with no translation. We chose to display flags.

Figure 13: Header language switcher display options

Once header language switcher is established, we put it into page header by editing header.php file. Adding lines of code in header.php file (Figure 14):

```
<?php if ( ! dynamic_sidebar( 'header-language-switcher' ) ) : ?>
```

```
<?php endif; // end header language switcher widget area ?>
```

```
<header>
  <section class="headerContentContainer">
    <?php the_custom_logo(); ?>
    <?php if ( ! dynamic_sidebar( 'header-language-switcher' ) ) : ?>
    <?php endif; // end header language switcher widget area ?>
    <?php if ( ! dynamic_sidebar( 'header-shppping-cart' ) ) : ?>
    <?php endif; // end header shppping cart widget area ?>
    <div id="headerNav">
      <?php wp_nav_menu(array('theme_location' => 'primary',)); ?>
    </div>
  </section>
</header>
```

Figure 14: Language switcher position PHP code

Nevertheless, default language switcher (Figure 15) in page header is not good-looking. For example, there are bullets in front of the flags while image resolution of flag images is quite low. In addition, when resize browser screen to tablet or phone size, language switcher will overlap with page content.



Figure 15: Language switcher default style

Language switcher is a language navigation for multilingual users when they want to change webpages between different language. According to consistency requirement in navigation design, language switcher style needs to be modified to fit our page layout. Modification purpose can be reached by website development method CSS. Following parts are language switcher widget implementations:

- 1) Change original fa-globe icon's black colour into white colour;
- 2) Display widget flags vertically when hover mouse on fa-globe icon;
- 3) Remove bullets in front of the flags;
- 4) Place the flag image above the header content

- 5) Set width of the flag image to 40px;
- 6) Display box-shadow and related language name when hover mouse on the flag image

```

/*Header.Language.Switcher
*/
.headerLanguageSwitcher {
  float: right;
  margin-top: 11px;
}

.headerLanguageSwitcher i.fa {
  color: white;
}

.headerLanguageSwitcher ul {
  display: none;
  list-style-type: none;
  padding: 0;
  position: absolute;
  z-index: 1;
}

.headerLanguageSwitcher: hover ul {
  display: block;
  cursor: pointer;
}

.headerLanguageSwitcher ul li {
  margin-top: 5px;
}

.headerLanguageSwitcher ul li img {
  width: 40px;
}

.headerLanguageSwitcher ul li img: hover {
  -webkit-box-shadow: 4px 4px 10px 0px rgba(198,76,27,1) ;
  -moz-box-shadow: 4px 4px 10px 0px rgba(198,76,27,1) ;
  box-shadow: 4px 4px 10px 0px rgba(198,76,27,1) ;
}
/*

```

Figure 16: Language switcher style.css code

Above modifications are solved by coding in style.css file (Figure 16) except replacing Polylang low resolution default flag images. Fortunately, it is possible for us to use our own flag images, but image should be PNG or JPG file. Meanwhile, customized flag image file cannot be uploaded to default flags directory of Polylang plugin. Modified language switcher shows in figure 17 below:



Figure 17: Modified language switcher style

Following steps are correct process for using customized flag images:

- 1) Create a new directory “polylang” in wp-content;
- 2) Upload customized flag images (en_US.jpg and zh_CN.png) in the /wp-content/polylang/directory;
- 3) Go in Languages>Settings>URL modifications module, click “save changes”.

5 Sunny Safari website testing

Due to tensive project working time, there is no such a test plan towards specific test case in Sunny Safari website testing stage but ad hoc testing approach. Ad hoc testing is a software testing method without proper planning and documentation, and testing is randomly carried out by testers to find defects without following predefined testing plans or documentations (Ad hoc testing 2018). In the ad hoc testing of Sunny Safari website, my project partner is responsible for general testing work, while I mainly work on multilingual part.

Even though ad hoc testing does not require any detail testing plans, Sunny Safari website testing tasks are divided part by part, which is vary from functional testing part to browser compatibility testing part and security testing part. In addition, local WordPress environment itself is a testing environment, almost testing tasks can be done in local WordPress environment except contact forms testing, which needs to be tested in live site.

5.1 Testing process

All the Sunny Safari website implementation work is separated into small tasks, once each implementation task finished, it would be tested on local WordPress. When whole website is done, it is overall tested.

Sunny Safari website testing in local WordPress environment is conducted from following three aspects: functional testing, browser compatibility testing, and security testing. Functional testing is focus on functionality of Sunny Safari website, such as check all links,

buttons, test all web forms on the page, and so on. Browser compatibility testing is used for checking impacts on website looking by using different web browsers, operating environments, and devices. Security testing includes testing browser security setting, and basic authentication for WordPress admin login, and so on.

When all the local WordPress testing is done, and problems are solved successfully, Sunny Safari website would be moved from local server to its live site via using cPanel. Once Sunny Safari website is running on web server, contact us form and join us form would be tested by filling and submitting those forms on live site.

5.2 Testing findings and solutions of multilingual part

Most of Sunny Safari website implementation work passed testing, while some of them are not. When implementation work fails to pass testing, it would be solved until it passes testing. In order to prevent messing up whole website from some frequent modifications, all the modification history and previous versions can be extracted from Sunny Safari website project in Gitlab. Following several examples present the typical issues in multilingual part testing.

5.2.1 Show blogs in homepage

In our multilingual website design, activities blogs can be chosen to show on homepage. We selected 12 activities but only 10 among them showing on homepage. With the help of WordPress community, we found the reason is that WordPress shows a maximum of posts per page by default. The solution is adding following codes into functions.php file, which breaks limitation of the posts displaying number.

```
$args = array(
    'category'=> $category_id,
    'numberposts'=> -1
);
```

5.2.2 Multilingual navigation bar

Navigation has been designed and implemented as collapsing type, it means the navigation bar is replaced by a button when screen size is small. The button is named as “MENU” and the name should be translated into corresponding language, which shows as figure 18 and figure 19.

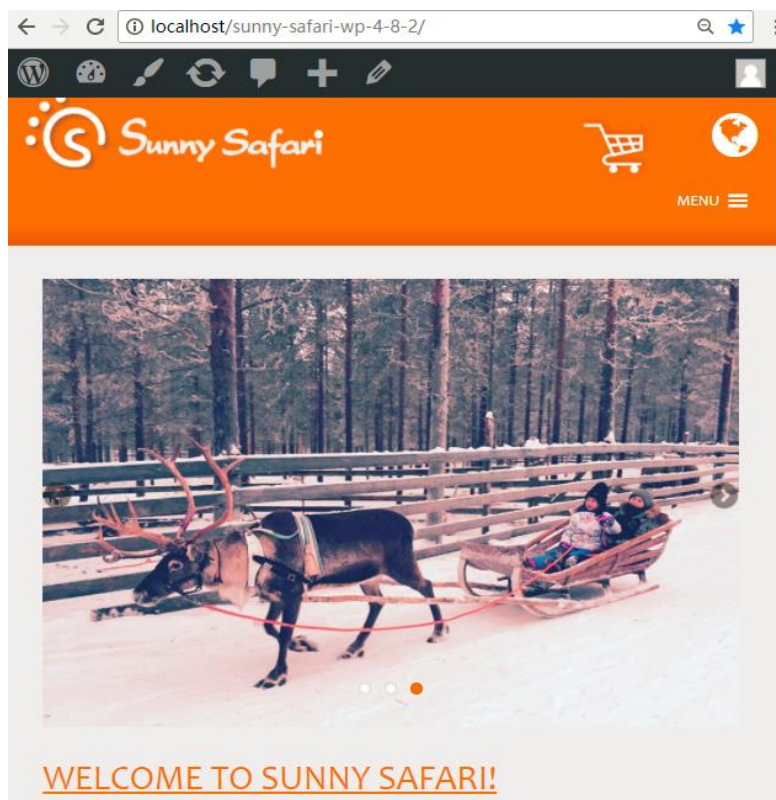


Figure 18: English version navigation bar

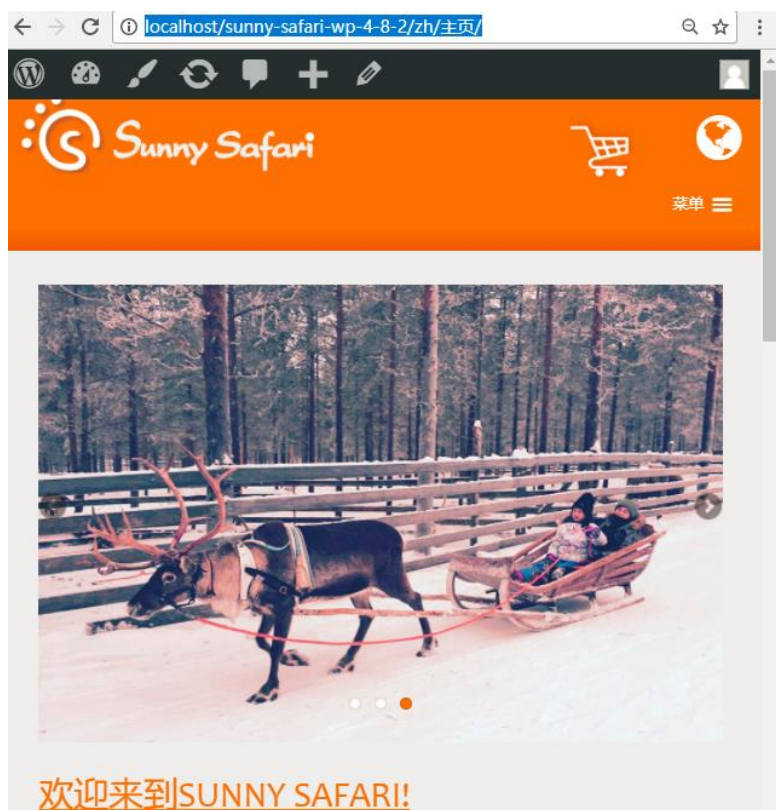


Figure 19: Chinese version navigation bar

However, testing results revealed that Polylang plugin does not support to translate the name “MENU”. The only solution so far is manually coding in CSS editor of Max Mega Menu plugin, which is used for developing navigation menus. The code format should be:

```
html:lang(WordPress Locale for the language) #mega-menu-wrap-primary .mega-menu-tog-
gle .mega-toggle-block-1:after {
```

```
    content: 'translation of word menu';
```

```
}
```



Figure 20: Solution of multilingual navigation bar issue

Above figure 20 is the CSS editor screenshots of Max Mega Menu plugin.

5.2.3 Booking service system

Booking service is outsourced to CodeGem Oy and the URL of booking service system is linked to shopping cart logo in Sunny Safari website. However, the booking service system site URL and page layout do not match with Sunny Safari website. In addition, booking service system only provides English version. Since booking service has been outsourced, the booking service system site issue cannot be solved by Sunny Safari website development team.

6 Conclusion

Sunny Safari website is a WordPress based multilingual website. The aim and objectives defined in the planning stage are mostly achieved by benchmarking analysis, design, implementation, and testing work. The first version of Sunny Safari website has two language version that includes English and Chinese, and it provides customers with customized online tourism

service. Large WordPress support community gives a hand to Sunny Safari Oy for website management and maintenance work. However, the project aim is not fully achieved, put it in another words, the implemented Sunny Safari website and WordPress support community cannot absolutely guarantee this multilingual website is easily-managed. Current running Sunny Safari website is not carefully tested by a testing planning, it might occur some issues that needed to be solved by technical person in future.

The biggest challenge in this project is designing and implementing language switcher for Sunny Safari website, but the whole project is processed in a logical way, which starts from project planning, to design, implementation, and testing. Even though there are slight changes during project implementation stage, because of client company's new ideas or suggestions, which makes website launching time is a little bit delayed. Additionally, it is not easy to perform website testing since there is no such a testing plan to follow.

Moreover, a great multilingual website for tourism company not only translate web content into different language, but also consider about website localisation. Since the first version of Sunny Safari website just provides pure text translation, but not considers relevant culture or interests content, website localisation is recommended for the further Sunny Safari website development. Sunny Safari website localisation is the process of modifying its current multilingual website to be culturally suitable to target audiences. Furthermore, booking service is outsourced to CodeGem Oy, which does not offer multilingual booking system and only links English version to Sunny Safari website so far. Therefore, having a corresponding multilingual booking system is another suggestion for future development of Sunny Safari website.

In general, the first version of Sunny Safari website has been successfully launched in the beginning of November 2017. The website link is <http://www.sunnysafari.fi/>. Website localisation and multilingual booking system are recommended for its future improvements to promote its website service. This project study shows how to plan, design, implement, and test a multilingual WordPress website. In addition, it also contributes to solutions for solving multilingual website issues when use Polylang plugin.

References

- Ad hoc testing. 2018. Accessed 17 May 2018. https://www.tutorialspoint.com/software_testing_dictionary/adhoc_testing.htm
- Benckendorff, P., Sheldon, P. & Fesenmaier, D. 2014. Tourism information technology. 2nd edition. London: CABI.
- Bootstrap. 2018. Accessed 4 May 2018. <https://getbootstrap.com/>
- Chaffey, D. & Ellis-Chadwick, F. 2016. Digital marketing strategy, implementation and practice. 6th edition. London: Pearson.
- Costales, A. No date. Translation 2.0. The localization of institutional websites under the scope of functionalist approaches. Accessed 6 May 2018. <https://www.arts.kuleuven.be/cetra/papers/files/fernandez-costales.pdf>
- cPanel features. 2018. Accessed 4 May 2018. <https://cpanel.com/products/>
- EURESCOM. 2001. Multilingual web sites: best practice guidelines and architectures. Guidelines for building multilingual web sites. Accessed 24 May 2018. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.87.4305&rep=rep1&type=pdf>
- Farooq, A., Javed, F., Abbas, M. & Hussain, A. 2012. Open source content management systems: a canvass, 3 (10), 38-43. Article from International Journal of Multidisciplinary Sciences and Engineering. Accessed 23 May 2018. <http://www.ijmse.org/>
- Git. 2018. Accessed 4 May 2018. <https://git-scm.com/>
- GitLab. 2018. Accessed 4 May 2018. <https://about.gitlab.com/>
- Lako, C. 2013. Which way website localization: translation or copywriting? Article from ProQuest. Accessed 6 May 2018. <http://www.proquest.com/>
- Miraz, M., Ali, M. & Excell, P. No date. Multilingual website usability analysis based on an international user survey. Accessed 10 March 2018. <https://arxiv.org/ftp/arxiv/papers/1708/1708.05085.pdf>
- Notepad++. 2018. Accessed 4 May 2018. <https://notepad-plus-plus.org/>
- PHP. 2018. Accessed 4 May 2018. <http://www.php.net/>
- Polylang. 2018. Accessed 5 May 2018. <https://wordpress.org/plugins/polylang/>
- Schiller, A. 2008. Aspects of cohesion in web site translation: a translator's perspective. Accessed 24 May 2018. <http://doras.dcu.ie/610/>
- Singhal, N., Mohan, T. & Sarkar, S. No date. A comparative study based on open source content management systems, 1 (4), 267-276. Article from Indian Journal of Computer Science and Engineering. Accessed 23 May 2018. <https://pdfs.semanticscholar.org/cfd1/3f7a6e52f26aeda82e16425db55cba0b53fe.pdf>
- Stround, J. No date. Understanding the purpose and use of benchmarking. Accessed 10 March 2018. <https://www.isixsigma.com/methodology/benchmarking/understanding-purpose-and-use-benchmarking/>
- The Gallup Organization. 2011. User language preferences online. Accessed 2 March 2018. http://ec.europa.eu/commfrontoffice/publicopinion/flash/fl_313_en.pdf

W3C Internationalization Working Group. 2004. Monolingual vs. Multilingual Web Sites. Accessed 5 May 2018. <https://www.w3.org/International/questions/qa-mono-multilingual.en.html>

What is a multilingual website. No date. Accessed 4 May 2018. <http://www.multilanguage-websites.com/overview.aspx>

What is Apache. 2018. Accessed 4 May 2018. <http://www.wpbeginner.com/glossary/apache/>

What is MySQL. 2018. Accessed 4 May 2018. <https://dev.mysql.com/doc/ref-man/5.7/en/what-is-mysql.html>

What is XAMPP. 2018. Accessed 4 May 2018. <https://www.apachefriends.org/index.html>

Wober, K. 2002. Benchmarking in tourism and hospitality industries: the selection of benchmarking partners. London: CABI.

WooCommerce Multilingual - run WooCommerce with WPML. 2018. Accessed 5 May 2018. <https://wordpress.org/plugins/woocommerce-multilingual/>

WordPress. 2018. Accessed 2 May 2018. <https://wordpress.org/about/>

World Tourism Organization UNWTO. 2017. Why tourism. Accessed 4 May 2018. <http://www2.unwto.org/content/why-tourism>

WPGlobus - Multilingual Everything. 2018. Accessed 5 May 2018. <https://wordpress.org/plugins/wpglobus/>

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